

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

What is claimed is:

1. (Previously presented) A method of treating a subterranean formation comprising:
providing a treatment fluid that comprises a surfactant-free emulsion, the surfactant-free emulsion comprising an oleaginous fluid, a fluid that is at least partially immiscible with the oleaginous fluid, and non-surfactant ethylacrylate/methylacrylic acid polymeric emulsifier having hydrophilic moieties and hydrophobic moieties; and treating the subterranean formation; wherein the polymeric emulsifier has a molecular weight of about 100,000, is substantially absorbed at the oil water interface of the emulsion, and has an internal phase fraction of about 0.1% to about 96%.
2. (Original) The method of claim 1 wherein the non-surfactant polymeric emulsifier interacts with the oleaginous fluid and the fluid that is at least partially immiscible with the oleaginous fluid to at least partially stabilize the surfactant-free emulsion.
3. (Original) The method of claim 1 wherein the method of treating the subterranean formation comprises a stimulation operation.
4. (Original) The method of claim 3 wherein the stimulation operation comprises a fracturing operation.
5. (Original) The method of claim 3 wherein the stimulation operation comprises an acid stimulation treatment.
6. (Original) The method of claim 5 wherein the acid stimulation treatment comprises a matrix acidizing process or a fracture acidizing process.

7. (Original) The method of claim 1 wherein the method of treating a subterranean formation comprises completing a well.
8. (Original) The method of claim 1 wherein the method of treating a subterranean formation comprises drilling a well bore.
9. (Original) The method of claim 1 further comprising flowing back a portion of the treatment fluid from the subterranean formation.
10. (Original) The method of claim 9 wherein the treatment fluid further comprises a breaker.
11. (Original) The method of claim 1 wherein the surfactant-free emulsion comprises a continuous phase and a discontinuous phase.
12. (Original) The method of claim 11 wherein the continuous phase comprises the oleaginous fluid.
13. (Original) The method of claim 11 wherein the continuous phase comprises the fluid that is at least partially immiscible with the oleaginous fluid.
14. (Original) The method of claim 1 wherein the hydrophilic and hydrophobic moieties of the non-surfactant polymeric emulsifier are balanced so as to promote and stabilize emulsification of the treatment fluid.
15. (Canceled)
16. (Original) The method of claim 1 wherein said emulsion has a high internal phase fraction.
17. (Previously presented) The method of claim 1 wherein said emulsion has an internal phase fraction of at least about 96%.

18. (Original) The method of claim 1 wherein the non-surfactant polymeric emulsifier comprises a non-surfactant polymer or combination of non-surfactant polymers.
19. (Original) The method of claim 18 wherein said polymers are amphoteric.
20. (Original) The method of claim 1 wherein the oleaginous fluid comprises diesel oil, crude oil, paraffin oil, olefin, ester, amide, amine, synthetic oil, ether, acetal, dialkyl carbonate, other hydrocarbons not a surfactant, or combinations thereof.
21. (Original) The method of claim 1 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises fresh water, sea water, salt water, or brine.
22. (Original) The method of claim 21 wherein the brine comprises a H₂O soluble salt.
23. (Original) The method of claim 1 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises a heavy brine.
24. (Original) The method of claim 1 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises glycerin, polyglycol amine, glycol, polyol, a derivative thereof, or a combination thereof.
25. (Original) The method of claim 1 wherein the treatment fluid further comprises one or more non-surfactant additives comprising proppant particulates, gravel particulates, viscosifier, thinner, lubricant, anti-oxidant, weighting agent, H₂O soluble salt, wetting agent, fluid loss agent, corrosion inhibitor, or scale inhibitor.
26. (Previously presented) A method comprising:
 - drilling a well bore in a subterranean formation using a surfactant-free emulsion drilling fluid that comprises:
 - an oleaginous fluid;
 - a fluid that is at least partially immiscible with the oleaginous fluid; and

non-surfactant ethylacrylate/methacrylic acid polymeric emulsifier having a molecular weight of about 100,000 and hydrophilic and hydrophobic moieties such that the emulsifier is substantially absorbed at the emulsion interface between the oleaginous fluid and the at least partially immiscible fluid.

27. (Original) The method of claim 26 wherein the non-surfactant polymeric emulsifier is amphoteric.

28. (Canceled)

29. (Original) The method of claim 26 wherein said emulsion has a high internal phase fraction.

30. (Original) The method of claim 26 wherein said emulsion has an internal phase fraction in the range of about 0.1% to about 96%.

31. (Original) The method of claim 26 wherein the non-surfactant polymeric emulsifier comprises a polymer or combination of polymers.

32. (Original) The method of claim 26 wherein the oleaginous fluid comprises diesel oil, crude oil, paraffin oil, olefin, ester, amide, amine, synthetic oil, ether, acetal, dialkyl carbonate, other hydrocarbons not a surfactant, or combinations thereof.

33. (Original) The method of claim 26 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises fresh water, sea water, salt water, or brine.

34. (Original) The method of claim 33 wherein the brine comprises a H₂O soluble salt.

35. (Original) The method of claim 26 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises a heavy brine.

36. (Previously presented) The method of claim 26 wherein the fluid that is at least partially immiscible with the oleaginous fluid comprises glycerin, polyglycol amine, polyol, a derivative thereof, or a combination thereof.

37. (Original) The method of claim 26 wherein the treatment fluid further comprises one or more non-surfactant additives comprising a viscosifier, a thinner, a lubricant, an anti-oxidant, a weighting agent, an H₂O soluble salt, a wetting agent, a fluid loss agent, a corrosion inhibitor, or a scale inhibitor.

38.-56. (Canceled)

57. (Previously presented) A method of fracturing a subterranean formation comprising:

providing a surfactant-free emulsion composition comprising an oleaginous fluid, a fluid that is at least partially immiscible with the oleaginous fluid, a non-surfactant ethylacrylate/methacrylic acid polymeric emulsifier having a molecular weight of about 100,000 and hydrophilic and hydrophobic moieties such that the polymeric emulsifier is substantially absorbed at the oil water emulsion interface, and proppant particulates; and

placing the surfactant-free emulsion composition into the subterranean formation at a pressure sufficient to create or enhance at least one fracture therein.

58. (Original) The method of claim 57 wherein the surfactant-free emulsion composition further comprises a breaker.

59. (Original) The method of claim 57 further comprising removing the surfactant-free emulsion composition from the subterranean formation while leaving at least a portion of the proppant particulates in the fracture.

60. (Original) The method of claim 59 wherein said removal of the emulsion is effected with a breaker that breaks down the polymeric emulsifier.

61. (Previously presented) A method of installing a gravel pack comprising:

providing a gravel pack surfactant-free emulsion composition comprising an oleaginous fluid, a fluid that is at least partially immiscible with the oleaginous fluid, a non-surfactant ethylacrylate/methacrylic acid polymeric emulsifier having a molecular weight of about 100,000 and hydrophilic and hydrophobic moieties, and gravel particulates; and

introducing the composition to a well bore penetrating a subterranean formation so that the gravel particulates form a gravel pack substantially adjacent to a desired location in the well bore.

62.-79. (Canceled)